

CONTRIBUTIONS TO THE TAXONOMY OF AUSTRALIAN BUPRESTIDAE
(COLEOPTERA): NEW SPECIES OF *ASTRAEUS* AND *STIGMODERA* (*CASTIARINA*)
AND A KEY TO *ASTRAEUS* (s.s.)

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Summary

BARKER, S. (1989) Contributions to the taxonomy of Australian Buprestidae (Coleoptera): New species of *Astraeus* and *Stigmodera* (*Castiarina*) and a key to *Astraeus* (s.s.). *Trans. R. Soc. S. Aust.* 113(4), 185-194, 30 November, 1989.

Astraeus meyricki Blackburn is resurrected from synonymy, redescribed and illustrated. *Astraeus badeni* van de Poll is redescribed and illustrated and the following five new species of *Astraeus* (*sensu stricto*) are described: *A. aridus* sp. nov., *A. occidentalis* sp. nov., *A. princeps* sp. nov., *A. williamsi* sp. nov., *A. yarrattensis* sp. nov. A revised key to *Astraeus* (s.s.) is provided. The egg of *A. pygmaeus* van de Poll is illustrated and some biological information given. Two new species of *Stigmodera* (*Castiarina*) are described, *S. garnettensis* sp. nov., *S. wellsue* sp. nov.; the first has sexually dimorphic colour pattern, rare in the sub-genus.

KEY WORDS: New species, *Astraeus*, *Stigmodera* (*Castiarina*), Coleoptera, Buprestidae.

Introduction

The buprestid genus *Astraeus* was revised by Barker (1975) and additional species described by Barker (1977). No further information has been published. Fresh material has now come to hand and five new species are described herein including one species from the Flinders Ra., S. Aust., which was misidentified in the revision of Barker (1975). The separate status of *A. badeni* van de Poll and *A. meyricki* Blackburn has been in doubt since they were described. A re-examination of the specimens available has convinced me that they are separate species. The key to *Astraeus* (s.s.) given by Barker (1975) requires updating to include three new species published by Barker (1977), five new species described herein and one species resurrected from synonymy. A new key is presented and new locality records of two species recorded. The egg of *A. pygmaeus* van de Poll is illustrated, the first such observation of an *Astraeus* species, together with biological information on *A. pygmaeus*. Two new species of *Stigmodera* (*Castiarina*) are described and illustrated; one being unusual in showing sexual dimorphism in colour pattern, a rare occurrence in this sub-genus.

Materials and Methods

Male genitalia were prepared and displayed by the method described by Barker (1987). Specimens for S.E.M. were dehydrated prior to being coated with gold-palladium. Abbreviations used in the text for museum and private collections following Watt

(1979) are: BMNH British Museum (Natural History), London; JHQA Mr J. Hasenpusch, Innisfail; MNHN Museum National d'Histoire Naturelle, Paris; NMVA Museums of Victoria, Melbourne; SAMA South Australian Museum, Adelaide; WAMA Western Australian Museum, Perth; GWNA Mr G. Williams, Landsdowne; GWQA Mr G. Wood, Atherton.

Resurrection of *Astraeus meyricki*

Van de Poll (1892) considered *A. meyricki* Blackburn a synonym of *A. badeni* van de Poll but Blackburn (1895) disagreed. Barker (1975) followed van de Poll. I have re-examined the two male syntypes of *A. meyricki* held respectively in the BMNH and SAMA collections and compared them with specimens in the SAMA identified by comparison with the female holotype of *A. badeni* held by the MNHN. The pronotum of *A. badeni* is widest medially and differs from *A. meyricki* which is widest basally. Male genitalia of *A. meyricki* are broader than those of *A. badeni* and are rounded more abruptly at the apices (Figs 1C, 1E). I conclude that *A. meyricki* (Fig. 2B) is a good species and hereby resurrect it from the synonymy of *A. badeni* (Fig. 2A). Both species are redescribed here.

Astraeus (*Astraeus*) *williamsi* sp. nov.

FIGS 1A, 2D

Holotype: ♂, Peninsular Rd, Lansdowne, N.S.W., 10.x.1987, G. Williams, SAMA I 21219.

Allotype: ♀, same data as holotype, SAMA I 21220.

Paratypes: N.S.W.; 5 ♂♂, Peninsular Rd,

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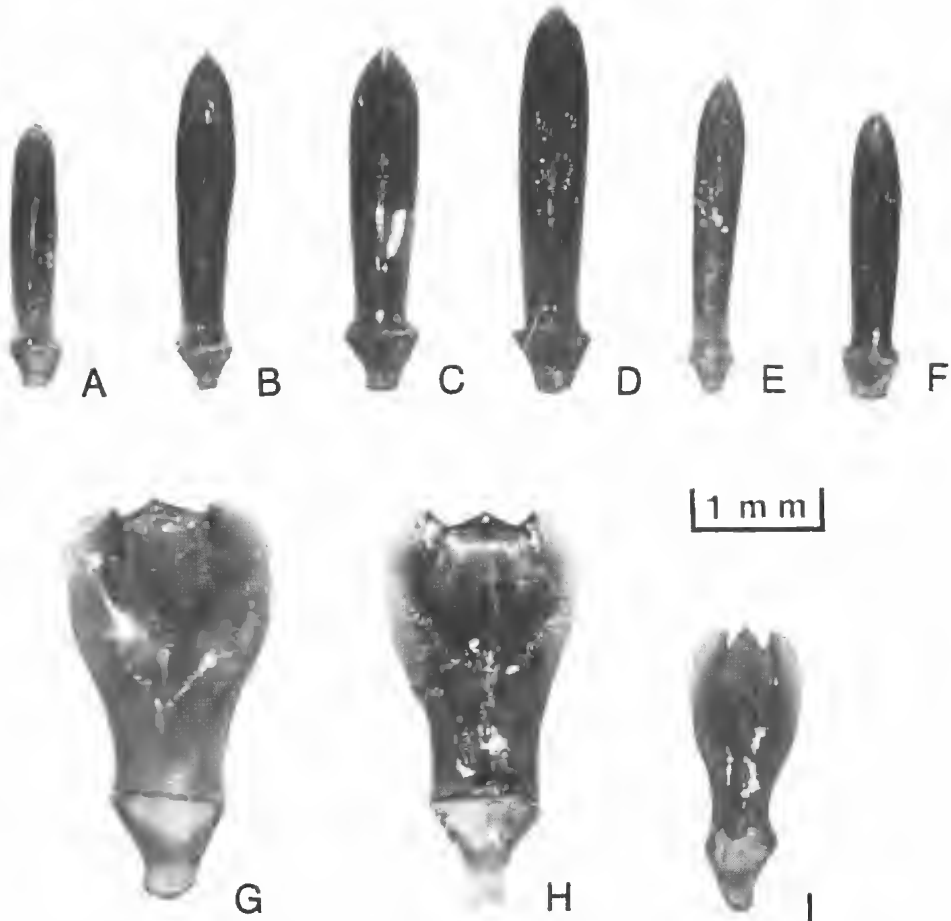


Fig. 1. Photomicrographs of male genitalia of the following *Astraeus* (*Astraeus*) species: A. *Astraeus williamsi* sp. nov., B. *A. aridus* sp. nov., C. *A. meyricki* Blackburn, D. *A. occidentalis* sp. nov., E. *A. badeni* van de Poll, F. *A. yarrattensis* sp. nov., and the following *Stigmodera* (*Castiarina*) species: G. *Stigmodera garnettensis* sp. nov., H. *S. vallsi* Deuquet, I. *S. wellsae* sp. nov.

Lansdowne, 17.xi.1980, 23.x.1980, 30.x.1980, 22.x.1982, 28.x.1988, G. Williams, GWNA.

Colour: Head blue-green or blue. Antennae, segments: 1-3 coppery; 4-11 blue. Pronotum blue laterally, purple medially. Elytra dark blue, each elytron with following yellow markings: basal spot; pre-medial fascia represented by mark over humeral fold and spot near suture; post-medial fascia touching margin but not reaching suture; small pre-apical spot. Ventral surface dark blue. Legs: femora dark blue; tibiae mostly dark blue, distal tip testaceous; 1st tarsomere mostly testaceous, distal tip blue, 2nd tarsomere mostly testaceous, distal tip blue, 3-4 tarsomeres blue. Hairs silver.

Shape and sculpture. Head closely punctured, without median keel, hairy. Pronotum closely

punctured; laterally parallel-sided at base, rounded posteromedially to apex, hairy. Elytra costate, intervals flat and smooth each with basal row of punctures; laterally parallel-sided basally, rounded posteromedially and tapered to sharp marginal spine; sutural spine sharp, rounded inner margin, humeral fold moderately developed, angled (*vide* Barker 1975 Fig. 1E). Ventral surface shallowly punctured, moderately hairy, hairs short.

Size. Males, $7.5 \pm 0.18 \times 2.9 \pm 0.08$ mm (6). Females, 7.9×3.2 mm (2).

Male genitalia: (Fig. 1A). Parameres parallel-sided from basal piece, widened medially, tapered, rounded and tapered to apex. Apophysis of basal piece broad, rounded apically.

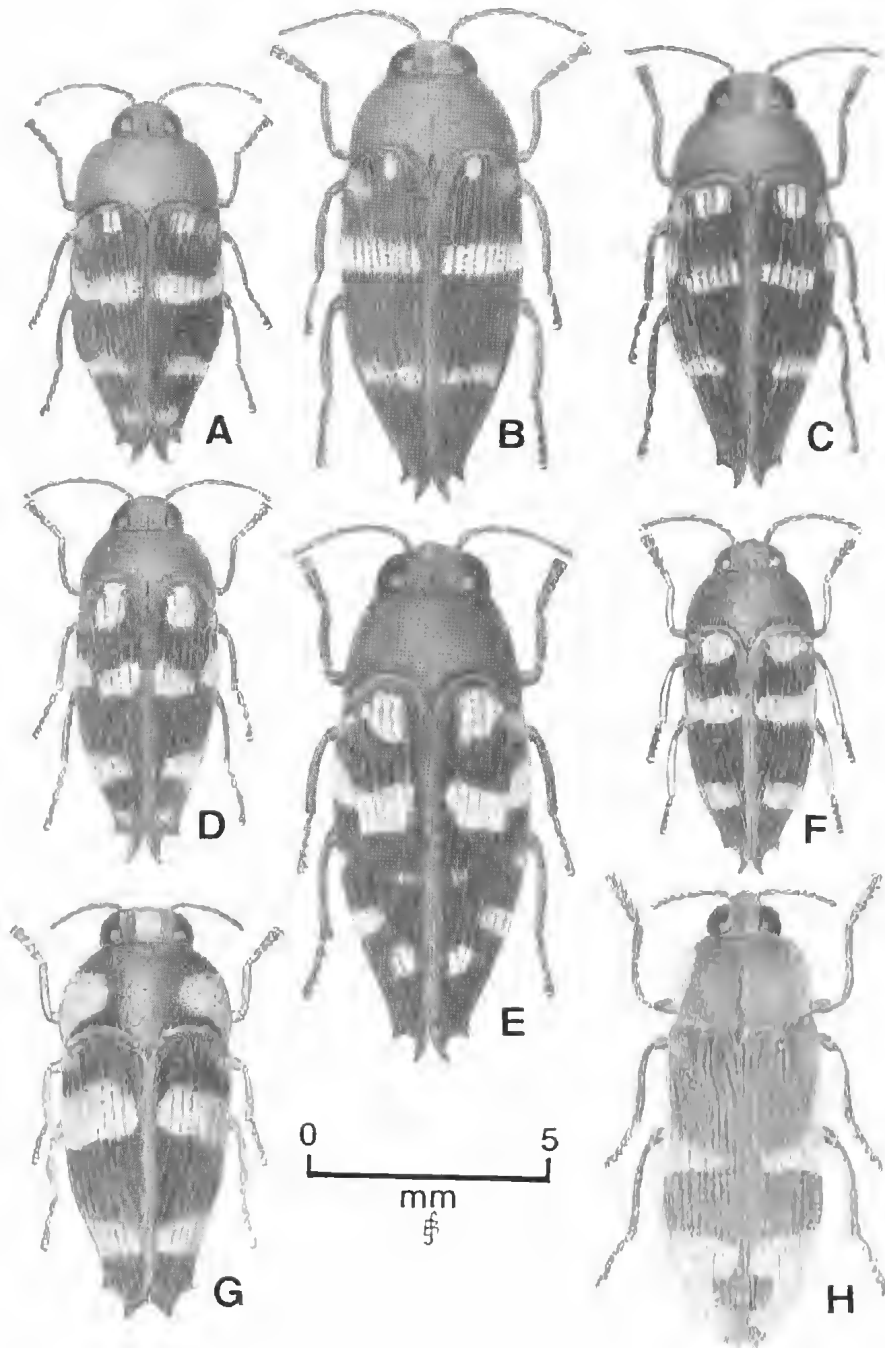


Fig. 2. Habitus illustrations of the following species: A. *Astraeus badeni* van de Poll, B. *A. meyricki* Blackburn, C. *A. aridus* sp. nov., D. *A. williamsi* sp. nov., E. *A. occidentalis* sp. nov., F. *A. yarrattensis* sp. nov., G. *A. princeps* sp. nov., H. *Stigmodera wellsae* sp. nov.

Remarks: Named after Mr G. Williams, Lansdowne.

***Astraeus (Astraeus) yarrattensis* sp. nov.**
FIGS 1E, 2F

Holotype: ♂, Yarratt State Forest, NE Wingham, N.S.W., 11.xi.1981, G. Williams, SAMA I 21221.

Allotype: ♀, 10 km SSW Laurieton, N.S.W., 6.xi.1980, G. Williams, SAMA I 21222.

Paratypes: N.S.W.: 1 ♂, same data as holotype, GWNA; 3 ♂♂, Yarratt State Forest, NE Wingham, 29.x.1981, 16.xi.1982, G. Williams, GWNA; 1 ♂, Bom Bom State Forest, SE Grafton, 14.xii.1984, G. Williams, GWNA; 1 ♀, Mitchells' Island, (Factory Rd), E Taree, 9.xi.1988, G. Williams, GWNA.

Colour: Male. Head blue-green, dark blue basally with purple reflections. Antennae, segments: 1-3 coppery; 4-11 blue. Pronotum dark blue with purple reflections, blue at lateral and basal margins. Female. Head and pronotum dark blue; rest as in male. Elytra dark blue with following yellow markings on each elytron: large basal spot; pre-medial fascia covering humeral fold but not reaching suture; post-medial fascia covering margin but not reaching suture. Ventral surface blue. Legs: femora blue; tibiae blue at proximal end, rest testaceous; 1st tarsomere testaceous; 2-4 tarsomeres blue. Hairs silver.

Shape and sculpture: Head closely punctured, glabrous median keel, hairy. Pronotum closely punctured; laterally parallel-sided basally, rounded posteromedially, tapered to apex; median impressed line from middle to apical margin, laterally hairy. Elytra costate, intervals flat, basally wrinkled, each with row of punctations; laterally tapered from base, rounded posteromedially, tapered to sharp marginal spine; sharp sutural spine, rounded inner margin; humeral fold well developed and angled. Ventral surface closely punctured, moderately hairy, hairs medium length.

Size: Males, 6.9 x 2.9 mm (6). Females, 7.4 x 3.1 mm (2).

Male genitalia: (Fig. 1E). Parameres angled outwards from basal piece, more or less parallel-sided, rounded to apex. Apophysis of basal piece broad, rounded apically.

Remarks: Named after the type locality.

***Astraeus (Astraeus) aridus* sp. nov.**
FIGS 1B, 2C

Astraeus badeni: Barker 1975, p 131.

Holotype: ♂, Puttapa Gap, 21 km S Copley, S. Aust., Flinders Ra., 21.x.1971, S. Barker, SAMA I 21223.

Allotype: ♀, same data as holotype, SAMA I 21224.

Paratypes: S. Aust.: 6 ♂♂, 8 ♀♀, same data as holotype SAMA; 8 ♂♂, 6 ♀♀, Derna Pass, 25.x.1969, N. McFarland, SAMA.

Colour: Head, antennae, pronotum black with blue reflections. Elytra black with blue reflections and following yellow markings: basal spot; fascia covering humeral fold, not reaching suture, concave anteriorly, often represented by two spots; short post-medial fascia touching margin but not suture, concave posteriorly. Ventral surface and legs black with purple reflections. Hairs silver.

Shape and sculpture: Head closely punctured, no median keel, hairy. Pronotum closely punctured; laterally rounded and narrowed from base to apex; hairy. Elytra costate, intervals flat, each with row of punctures; laterally parallel-sided basally, rounded posteromedially to marginal spine; both spines sharp, sutural spine with rounded inner margin, humeral fold poorly developed, slightly angled. Ventral surface shallowly punctured, moderately hairy, hairs medium length.

Size: Males, 8.9 ± 0.10 x 3.5 ± 0.07 mm (15). Females, 9.1 ± 0.14 x 3.6 ± 0.07 mm (15).

Male genitalia: (Fig. 1B). Parameres angled outwards from basal piece, rounded anteromedially to apex. Apophysis of basal piece medium width, rounded apically.

Remarks: All specimens were collected on the leaves and stems of *Melaleuca glomerata* F. Muell. from the same locality. Derna Pass is a synonym of Puttapa Gap. The specific name is derived from *aridus* L., dry.

***Astraeus (Astraeus) badeni* van de Poll**
FIGS 1E, 2A

Astraeus badeni van de Poll 1889: 84, 93, 94, pl. 2, figs 7, 7a, Blackburn 1891: 496; Kerremans 1892: 101; van de Poll 1892: 67; Blackburn 1895: 45, 46; Kerremans 1903: 148; Carter 1929: 282; Obenberger 1930: 365; Barker 1975: 131.

Astraeus badeni disjunctus Obenberger 1928: 204; 1930: 365; Barker 1975: 131.

Astraeus meyricki Blackburn 1890: 1256, 1257; van de Poll 1892: 67; Kerremans 1892: 101; Kerremans 1903: 148; Carter 1929: 282; Obenberger 1930: 365; Barker 1975: 131.

Type: Holotype ♀, Gawler, MNHN.

Colour: Head, antennae, pronotum black with blue and purple reflections. Elytra black with purple reflections and following yellow markings on each elytron: basal spot; pre-medial fascia from margin over humeral callus, not reaching suture, concave anteriorly; short post-medial fascia from margin not reaching suture, concave posteriorly; small pre-apical spot. Ventral surface black with bronze and purple reflections. Legs black with blue and purple reflections. Hairs silver.

Shape and sculpture: Head closely punctured, no median keel, hairy. Pronotum closely punctured; laterally parallel-sided basally, rounded, indented to apex, hairy. Elytra costate, intervals flat each with row of punctures; laterally parallel-sided basally, rounded posteromedially, abruptly tapered to sharp marginal spine; sharp sutural spine, rounded inner margin, humeral fold moderately developed, angled. Ventral surface shallowly punctured, moderately hairy, hairs long.

Size: Males, 7.9 x 3.4 mm (6). Females, 8.4 x 3.6 mm (8).

Male genitalia: (Fig. 1E). Parameres angled outwards from basal piece for most of length, rounded to apex. Apophysis of basal piece medium width, rounded apically.

Distribution: S. Aust.: Gawler, Morgan, Murray Bridge, Nuriootpa. Vic.: Inglewood. W.A.: Marvel Loch, Southern Cross.

Remarks: *A. badeni* differs from congeners in the bulbous appearance of the pronotum and the more abruptly tapering apices of the elytra. It is a short broad species. A specimen in the SAMA collected by Tepper at Nuriootpa, S. Aust. has 'on *Callitris*' on the label, the only specimen seen with a recorded host plant.

Astraeus (Astraeus) meyeri Blackburn
FIGS 1C, 2B

Astraeus meyeri Blackburn, 1890: 1256, 1257; 1895: 45, 46.

Type: Syntype ♂, no data, BMNH; syntype ♂, W. Australia, SAMA.

Colour: Head, antennae, pronotum black with purple reflections. Elytra black with following yellow marks on each elytron: small basal spot; pre-medial fascia covering humeral fold, not reaching

suture; post-medial fascia not reaching margin at suture. Ventral surface black with purple reflections. Legs dark brown with purple reflections. Hairs silver.

Shape and sculpture: Head closely punctured, shallow basal median sulcus, without median keel, hairy. Pronotum closely punctured, with prominent basal fovea, median glabrous line from base to middle; laterally rounded from base to apex. Elytra costate, intervals flat, each with row of punctures; laterally tapered from base, rounded posteromedially then tapered to sharp marginal spine; sharp sutural spine, rounded inner margin; humeral fold very poorly developed, very slightly angled. Ventral surface shallowly punctured, moderately hairy, hairs medium length.

Size: Male, 10.6 x 4.5 mm (2).

Male genitalia: (Fig. 1C). Parameres angled outwards from basal piece, rounded to apex. Apophysis of basal piece medium width, rounded apically.

Remarks: There is a female specimen lodged in the SAMA possibly belonging to this species which I identified as *A. badeni* (Barker 1975 p. 133). It was collected 18 km SW Three Springs, W.A., on *Dryandra cirisoides*, 8.xi.1968, N. McFarland.

Astraeus (Astraeus) princeps sp. nov.
FIG. 2G

Holotype: ♀, Prince of Wales Island, Qld, Feb 1939, SAMA I 21225.

Paratype: Qld: 1 ♀, same data as holotype SAMA.

Colour: Head black with blue reflections and yellow frontal spot. Antennae black with blue reflections. Pronotum black with blue reflections and large lateral yellow marks. Elytra black with blue reflections and following yellow marks on each elytron: broad pre-medial fascia covering margin but not reaching suture, obliquely angled anteriorly; broad post-medial fascia covering margin but not reaching suture. Ventral surface dark blue. Legs red-brown. Hairs silver.

Shape and sculpture: Head shallowly punctured, no median keel, few short hairs. Pronotum shallowly punctured, laterally rounded from base to apex, widest medially, few short hairs. Elytra costate, intervals flat, each with row of punctures, surface wrinkled basally; laterally tapered from base, rounded posteromedially, tapered to sharp marginal

spine; sharp sutural spine, inner margin straight and turned upward, with extended marginal interval between spines; humeral fold absent. Ventral surface shallowly punctured, moderately hairy, hairs medium length.

Size: Females, 7.9 x 3.4 mm (2).

Remarks: Both specimens were given to Mr S. Watkins by Robert G. Wind, insect supply dealer and resident of Monterey, California. His Australian wife had been stationed on Prince of Wales Island prior to World War II and presumably she was the collector. They are unique to the sub-genus due to the coloration on the head and pronotum. The dorsal coloration may have been pink or red in life and now faded. The name is derived from *princeps* L., leader.

Astracus (Astracus) occidentalis sp. nov.
FIGS 1D, 2E.

Holotype: ♂, 99 km S Overland Roadhouse, Carnarvon Hwy, W.A., 25.ix.1980, on *Casuarina dielsiana*, S. Barker, SAMA, I 21226.

Allotype: ♀, same data as holotype, SAMA, I 21227.

Paratypes: W.A.: 2 ♂♂, 1 ♀, WAMA, SAMA.

Colour: Head, antennae, pronotum coppery-bronze. Elytra black with blue and purple reflections and following yellow markings on each elytron: basal spot; pre-medial fascia covering humeral fold, touching basal margin but not reaching suture, concave anteriorly; medial spot on margin and one near suture in some specimens; large post-medial spot near margin; pre-apical spot near suture. Hairs silver.

Shape and sculpture: Head closely punctured, thin medial impressed line from base, continued as short glabrous median keel at apex, hairy. Pronotum closely punctured; prominent basal fovea projecting anteriorly for short distance as impressed line, anterior margin projecting medially; laterally rounded and narrowed from base to apex, hairy. Elytra costate, intervals flat, each with row of punctures; laterally parallel-sided basally, rounded medially and narrowed to small marginal spine; sharp sutural spine, rounded inner margin; humeral fold poorly developed, slightly angled. Ventral surface shallowly punctured, moderately hairy, hairs long.

Size: Males, 11.2 x 4.4 mm (3). Females, 11.8 x 4.6 mm (2).

Male genitalia: (Fig. 1D). Parameres angled outwards from basal piece, slightly rounded medially, rounded abruptly to apex. Apophysis of basal piece broad, rounded apically.

Remarks: The name is derived from *occidentalis* L., western.

Key to the species of *Astracus* (sensu stricto)

1. Head with median keel..... 2
- Head without median keel..... 22
2. Hairs silver..... 3
- Hairs yellow..... 21
3. Part or all of anterior ventral surface red-brown..... 4
- None of anterior ventral surface red-brown..... 7
4. Gular, prosternum, meso- and metasternum, coxae 2-3, abdominal segment 1 red-brown..... 4. *bakeri* Barker
- Less of ventral surface red-brown..... 5
5. Prosternum, coxae red-brown..... *A. minutus* Barker
- Red brown area on either side of prosternal process..... 6
6. Shorter than 7.5 mm; humeral fold well developed, acutely angled..... *A. fraseriensis* Barker
- Longer than 7.5 mm; humeral fold moderately developed, angled..... *A. obscurus* Barker
7. Most or part of leg testaceous..... 8
- None of leg testaceous..... 15
8. Legs 1-2 testaceous except for outer margin of femora, leg 3 testaceous except for femur..... *A. diluipes* van de Poll
- Less of leg than above testaceous..... 9
9. Tibiae, tarsomeres 1-2 testaceous..... *A. Smythi* Barker
- Less of leg than above testaceous..... 10
10. Tibiae testaceous, distal tips blue, tarsomere 1 testaceous..... *A. jarrattensis* sp. nov.
- Less of leg than above testaceous..... 11
11. Distal tips of tibiae testaceous, tarsomeres 1-2 testaceous, distal tips blue..... *A. williamsi* sp. nov.
- Less of leg than above testaceous..... 12
12. Tips of tibiae and tarsomere 1 testaceous..... 13
- Tarsomere 1 testaceous..... *A. mourangeensis* Barker
13. Usually shorter than 7 mm..... *A. pygmaeus* van de Poll
- Usually longer than 7 mm..... 14
14. Humeral fold well developed, acutely angled..... *A. mastersi* MacLear
- Humeral fold well developed, angled..... *A. samouelli* Saunders
15. Humeral fold moderately developed, angled..... 16
- Humeral fold poorly developed, slightly angled..... 17

16. Head green and coppery purple or blue-green. 17
 Head black. 18
17. Head, pronotum green and coppery purple.
 *A. intricatus* Carter
 Head blue-green, pronotum with medial, cordiform
 purple mark, anteriorly green, laterally blue.
 *A. blackdownsensis* Barker
18. Broad, rounded species. *A. globosus* Barker
 Elongate species. *A. watsoni* Barker
19. Body blue; elytra with 2 yellow fascia.
 *A. fraterculus* van de Poll
 Body black or coppery-bronze. 20
20. Body black; elytra with numerous yellow spots.
 *A. crassus* van de Poll
 Body coppery-bronze; each elytron with yellow fascia
 and 4-5 yellow spots. *A. occidentalis* sp. nov.
21. Elytra with 3 yellow fascia, red areas.
 *A. major* Blackburn
 Elytra with 2 yellow fascia, no red.
 *A. navarchis* (Thomson)
22. Body elongate and cylindrical. 23
 Body tear-drop shaped. 24
23. Pronotum conically elevated medially.
 *A. prothoracicus* van de Poll
 Pronotum convex medially.
 *A. elongatus* van de Poll
24. Suture spine with rounded inner margin. 25
 Suture spine with straight inner margin. 37
25. Legs red-brown colour. 26
 Legs other than red-brown colour. 27
26. Elytra marked with spots and fascia.
 *A. macmillani* Barker
 Each elytron with 2 vittae. *A. vittatus* van de Poll
27. Head, pronotum, legs metallic brown or bronze.
 *A. flavopictus* C & G
 Head, pronotum, legs other than brown or bronze. 28
28. Humeral fold well developed, angled. 29
 Humeral fold moderately or poorly developed. 30
29. Head black or coppery purple; ventral surface
 coppery-purple. *A. adamsi* Barker
 Head blue or green; ventral surface blue-green.
 *A. simulator* van de Poll
30. Humeral fold moderately developed, angled. 31
 Humeral fold poorly developed, slightly angled. 32
31. Pronotum laterally rounded from base to apex.
 *A. crockeræ* Barker
 Pronotum parallel-sided at base, rounded, indented
 to apex. *A. badeni* van de Poll
32. Basal spot touching basal margin of elytron.
 *A. carnabyi* Barker
 Basal spot not touching basal margin of elytron. 33
33. Elytron with 2 spots and 2 fascia or 4 spots and a
 fascia. 34
 Elytron with 6 spots and a fascia, 7 spots or 8 spots. 35
34. Head pronotum and elytra black.
 *A. meyricki* Blackburn
 Head pronotum and elytra black, with blue and
 purple reflections. *A. aridus* sp. nov.
35. Each elytron with 6 spots and a fascia or 8 spots.
 *A. jansoni* van de Poll
 Each elytron with 7 spots. 36
36. Pronotum parallel-sided from base to middle, strongly
 rounded and narrowed to apex; dorsally convex in
 lateral profile. *A. oberthuri* van de Poll
 Pronotum gradually rounded laterally, narrowed from
 base to apex; dorsally flattened in lateral profile.
 *A. carteri* Barker
37. Head with frontal spot. *A. princeps* sp. nov.
 Head without frontal spot. 38
38. Head with shallow median sulcus.
 *A. goerlingi* Barker
 Head with deep median sulcus. 39
39. Head with basal median sulcus; pronotum laterally
 inflated, medial oval patch of hexagonal cells.
 *A. cyaneus* Kerremans
 Head with apical median sulcus; pronotum laterally
 rounded, no medial hexagonal cells.
 *A. caledoniensis* Fauvel

New locality records

A single female specimen of *A. irregularis* van de Poll was collected by Mr E. E. Adams and myself at Blackdown Tableland, Qld, on 17.I.1979 on the foliage of *Casuarina inophloia*. This is a common W.A. species recorded from S. Aust. by Barker (1977). In the revision of *Astraeus* (Barker 1977) I did not record *A. jansoni* van de Poll outside of S. Aust. except for a doubtful Queensland record. Carter (1929) listed the species as occurring in the Blue Mts. I have examined Carter specimens in the SAMA collection from the Blue Mts and more recent material collected by Mr S. Watkins on



Fig. 3. S.E.M. micrograph of the elytron of *Astraeus pygmaeus* van de Poll.

Callitris muelleri at Wentworth Falls and Kings Tableland in the Blue Mts and confirm them to be *A. jansoni*.

Egg of A. pygmaeus van de Poll

A female specimen of *Astraeus pygmaeus* captured by me 24 km east of Armidale, N.S.W., on 19.xii.1989, laid 13 eggs onto the cardboard label in the vial in which it was placed. These hatched approximately 28 days later. The hard sculptured chorion of an egg from which a larvae hatched is illustrated (Fig. 3). Crowson (1981) indicated that most beetles have smooth eggs with a soft surface. A micropyle cannot be distinguished, but a row of tubercles, each pierced by an aeropyle, is clearly visible around the margin (Fig. 4). The eggs are oval with a flat ventral surface. The larvae emerged through the ventral surface and burrowed directly into the label. The chorions adhered to the label and covered each individual gallery. Presumably the same happens in the field situation. These are the first eggs of Australian buprestids that I have seen.

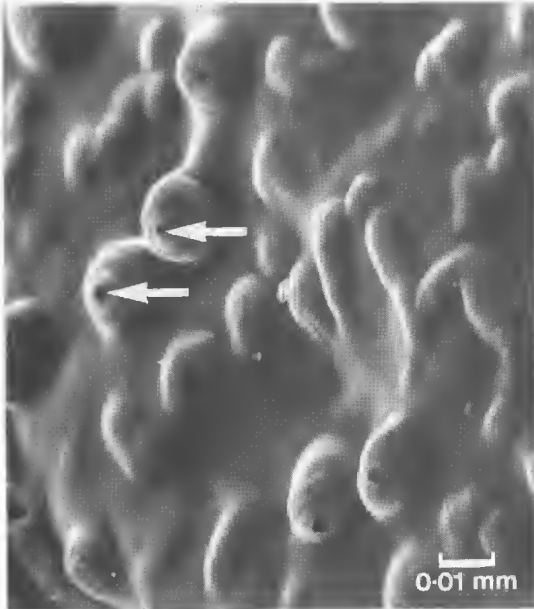


Fig. 4. S.E.M. micrograph of aeropyles (arrowed) on chorion of *Astraeus pygmaeus*.

Stigmodera (Castiarina) garnettensis sp. nov.

FIGS 1G,5

Holotype: ♂, Mt Garnett, Qld, 24.ii.1989, G. Wood, 1 21228 SAMA.

Allotype: ♀, Mt Garnett, Qld, 24.ii.1989, J. Hasenpusch, 1 21229 SAMA.

Paratypes: Qld: 1 ♀, Mt Molloy, 9.ii.1987, G. Wood, GWQA; 2 ♀♀, Kuranda, 6/8.i.1989, J. Hasenpusch, JHQA; 1 ♀, Mt Garnett, 20.ii.1989, G. Wood, GWQA; 1 ♂, Mt Garnett, 21.ii.1989, J. Hasenpusch, JHQA; 2 ♂♂, 3 ♀♀, 22.ii.1989, J. Hasenpusch, JHQA; 5 ♂♂, 2 ♀♀, same data as allotype, JHQA; 5 ♂♂, 6 ♀♀, Mt Garnett, 21/22.ii.1989, G. Wood, GWQA; 10 ♂♂, same data as holotype, GWQA; 1 ♀, Mt Garnett, 26.ii.1989, G. Wood, GWQA.

Colour: Male (Fig. 5A). Head, antennae and pronotum coppery-purple. Scutellum green with coppery-purple reflections. Elytra yellow with following markings either black with coppery-purple reflections, or dark blue with green reflections: variable basal mark, continuous with basal margin, not reaching lateral margins, reduced to basal margin and extension along suture in one specimen; post-medial fascia reaching margin; apical mark. Ventral surface coppery purple. Legs green with coppery-purple reflections. Hairs silver. Female (Fig. 5B). Head, antennae and pronotum green with yellow reflections, occasionally head and pronotum coppery-bronze. Scutellum green. Elytra yellow with following dark blue markings: broad basal fascia; broad post-medial fascia; basal mark. Ventral surface green with yellow reflections. Legs blue-green. Hairs silver.

Shape and Sculpture: Head closely punctured, median sulcus, short muzzle. Antennae, segments: 1-3 obconic; 4-11 toothed. Pronotum closely punctured, narrow basal fovea extending forwards to middle as glabrous line, basal notches on each side more marginal than medial; apical margin projecting medially, basal margin barely bisinuate; laterally angled outwards from base, rounded one third of distance from base, bulbous, tapered to apex. Scutellum scutiform, punctured, flat. Elytra punctate-striate, intervals convex, punctured; laterally angled out from base, rounded at humeral callus, concave, rounded posteromedially, abruptly rounded to spineless apex; apices diverging, apical margin subserrate. Ventral surface with shallow punctures, edges of abdominal segments glabrous, moderately hairy, hairs medium length. S_7 rounded in both sexes.

Size: Males, $14.2 \pm 0.15 \times 5.8 \pm 0.07$ mm (24). Females, $15.4 \pm 0.27 \times 6.6 \pm 0.12$ mm (17).

Male genitalia: (Fig. 1G). Short and broad. Parameres angled outwards from basal piece, rounded posteromedially then parallel-sided, rounded to apex. Apophysis of basal piece medium

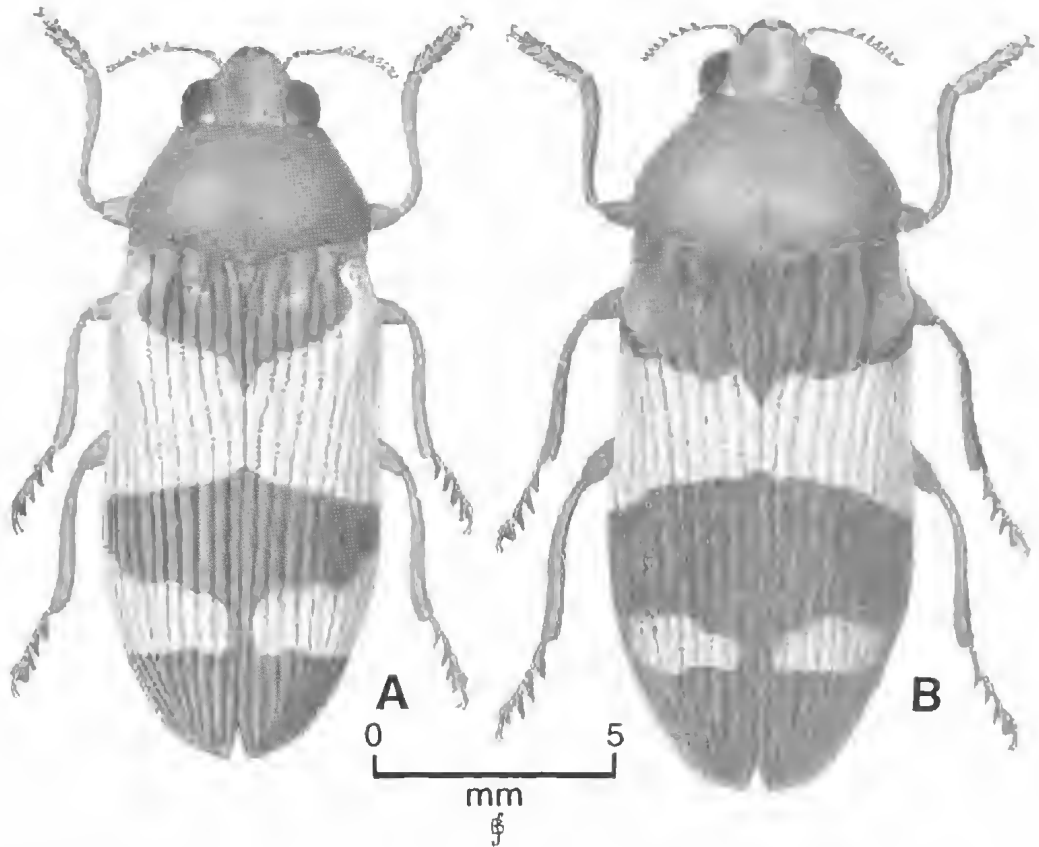


Fig. 5. Habitus illustrations of the following species: A. *Stigmodera garnettensis* sp. nov. male, B. *S. garnettensis* sp. nov. female.

width, tapered to rounded apex. Medium lobe pointed, sides obtusely angled away.

Remarks: This is a member of the *S. cruenta* Saunders species group as well as *S. flava* Saunders, *S. ovata* Barker, *S. pallas* Blackburn and *S. vallisi* Deuquet. Like *S. vallisi* the sexes are dimorphic and can be separated on colour and pattern differences. In the male genitalia of *S. vallisi* (Fig. 1H) the apophysis of the basal piece is narrower. The specific name is derived from the type locality.

***Stigmodera (Castiarina) wellsae* sp. nov.**
FIGS 11, 2H

Holotype: ♂, Portland, Vic., 21.xi.1944, *E. Smith*, NMVA.

Allotype: ♀, 20 km N Moe, Vic., 8.xi.1979, *A. Wells*, SAMA 1 21230.

Paratypes: Vic.: 1 ♂, 1 ♀, Emerald, 3.xii.1907, *Jarvis*, NMVA, SAMA; 3 ♂♂, Grampians, Nov.

1950, *B. Given*, NMVA; 4 ♂♂, Portland, 6.xii.1918, NMVA; 1 ♂, Ferntree Gully, 30.x.1919, NMVA; 1 ♂, Portland, NMVA; 1 ♂, 1 ♀, 'Taruna', Croydon, *S. W. Fulton*, NMVA; 1 ♀, Belgrave, 19.xi.1946, *F. E. Wilson*, NMVA; 1 ♀, Healsville, Nov. 1916, NMVA; 1 ♀, Monbulk, 12.xi.1902, *Jarvis*, NMVA; 1 ♀, Boulora, 4.xii.1954, *A. L. Brown*, NMVA; 1 ♀, locality indecipherable, 14.xi.1903, NMVA; 1 ♂, 4 ♀♀, no data, NMVA; 4 ♂♂, 5 ♀♀, Mt Rosea, Grampians, 15.xi.1950, *G. F. Gross*, SAMA; 1 ♂, Hall's Gap, Grampians, 14.xi.1950, *LeSouef*, SAMA.

Colour: Head and antennae blue with bronze reflections. Pronotum blue with bronze reflections medially, yellow laterally. Scutellum blue with bronze reflections. Elytra yellow with following blue markings with blue-green reflections: very broad basal mark only touching margin at humeral callus; broad post-medial fascia; pre-apical spade-shaped mark, reduced in holotype and allotype to short horizontal bar, all marks connected along suture to apex. Hairs silver.

Shape and Sculpture: Head closely punctured, median sulcus, short muzzle. Antennae, segments: 1-3 obconic; 4-11 toothed. Pronotum closely punctured, narrow basal fovea extending anteriorly to apical margin as impressed line, shallow fovea at each basal angle; apical margin projecting medially, basal margin barely bisinuate; laterally rounded from base to apex, widest medially. Scutellum scutiform, few punctures, flat. Elytra punctate-striate, intervals convex, punctured; laterally angled out from base, rounded at humeral callus, concave, rounded posteromedially and narrowed to spineless apex; apices hardly diverging, apical margin rough. Ventral surface with shallow punctures, edges of abdominal segments glabrous, moderately hairy, hairs short. S_7 : male truncate; female rounded.

Size: Males, $10.1 \pm 0.18 \times 4.0 \pm 0.09$ mm (19). Females, $10.5 \pm 0.19 \times 4.1 \pm 0.10$ mm (16).

Male genitalia: (Fig. 11) Short. Parameres parallel-sided basally, rounded posteromedially, parallel-sided, rounded apically. Median lobe sharp, sides

acutely angled away. Apophysis of basal piece medium-width, tapered, flattened apically.

Remarks: Member of the *S. distinguenda* Saunders species group together with *S. arida* Barker, *S. blackdownensis* Barker, *S. garrawillae* Carter, *S. grata* Saunders, *S. militaris* Carter, *S. subgrata* Blackburn, *S. supergrata* Barker, *S. watkinsi* Barker. It is closest to *S. watkinsi* but differs in having: blue markings on the dorsal surface whereas those in *S. watkinsi* are green, a different distribution; different male genitalia (Barker 1988; Fig. 1E). Specimens in the NMVA had been misidentified as *S. grata* Saunders. Named after Dr Alice Wells.

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